



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,970	02/17/2004	Carl K. Esche JR.	EI-7629	9121

34769 7590 09/28/2006

NEW MARKET SERVICES CORPORATION
(FORMERLY ETHYL CORPORATION)
330 SOUTH 4TH STREET
RICHMOND, VA 23219

EXAMINER

GOLOBOY, JAMES C

ART UNIT PAPER NUMBER

1714

DATE MAILED: 09/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,970

Applicant(s)

ESCHE, CARL K.

Examiner

James Goloboy

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/17/2004.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 8 line 23 of the specification, "well know" should be "well known".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear whether the ratio recited in the claim is a weight ratio or a mole ratio. Both possibilities have been accounted for in the rejection set forth under 35 USC 102 below.
4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 12 refers to an "additive of Claim 10", but Claim 10 does not refer to an additive. It is the examiner's position that applicant intended to recite

Art Unit: 1714

“additive package of Claim 11”, and the claim has been considered in this manner in the rejections below. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-5, 8-9, 14-15, 18, and 39 are rejected under 35 U.S.C. 102(b) as being anticipated by Soula (U.S. Pat. No. 4,088,381).

Soula, from column 7 line 49 through column 8 line 58 (Example 3), describes the preparation of the reaction product of a polyisobutenyl succinic anhydride with a molecular weight of about 1000, falling within the range recited in Claim 1, and a primary amine (column 7 line 54), which is formed by the reaction of an amine with acrylonitrile (column 7 line 67 through column 8 line 15), followed by reductive hydrogenation to a primary amine (column 8 lines 16-58), as recited in Claim 1.

Although the particular example of Soula utilizes a tertiary amine (triethanolamine) as the initial amine, attention is drawn to the column 3 lines 43-56 (structure III and the surrounding paragraph), where it is disclosed that the initial amine may be primary or secondary (the cases where X and/or X' are hydrogens), as recited in Claim 1.

Art Unit: 1714

In column 3 lines 66-68, Soula discloses that 1 to 1.2 moles of acrylonitrile or methacrylonitrile is used per –OH group on the alkanolamine. As either one or two –OH groups may be present on the amine of Soula's structure III while maintaining a primary or secondary amine, between 1 and 2.4 moles of acrylonitrile or methacrylonitrile would be reacted with the amine, falling within the range recited in Claim 2.

In column 3 lines 52-56 Soula discloses that the amine may be linear (if X is a hydrogen and X' is a linear C₁-C₄ alkyl radical), as recited in Claim 3, or the amine may be aromatic (if X' is a phenyl), as recited in Claim 4.

In column 7 lines 49-55, Soula discloses that the succinic anhydride and the treated amine are reacted in a weight ratio of 9.4:1 and a mole ratio of 2:1, falling within the range of Claim 5 for either interpretation.

In column 7 lines 14-16, Soula teaches that the reaction product may 1 to 7% of an oil for a petrol engine, or 4 to 10% of an oil for a diesel engine, both falling within the range recited in Claim 9. Additionally, the use of the product as a lubricant additive meets the limitations of Claims 14 and 18. Furthermore, as the process discloses by Soula for making the additive does not involve the use of sulfur or phosphorus, the additive clearly meets the limitations of Claim 39.

With respect to Claims 8 and 15, it is the examiner's position that the limitations of the claim require the reaction product of Claim 1 to be open to additional reactants other than the treated amine and the acylating agent, as it would otherwise be impossible for the product to comprise an untreated amine. This is reinforced by page 8 lines 1-2 of the specification, which notes that a combination of treated and untreated

Art Unit: 1714

amines may be used to make the additive. It is also the examiner's position that the "treated amine" refers to the mixture of all the products of the reaction of the initial amine with acrylonitrile and ensuing reduction, and that any individual amine is by definition untreated, even if it may also be obtained as a component of the treated amine mixture. Soula, in line 6 of the abstract, discloses that the succinimides may be obtained by reacting alkenylsuccinic anhydride with multiple ("at least one") polyamines, and Claim 8 is met when one of the polyamines is added as a neat compound with the structure disclosed in Soula's abstract, rather than obtained as part of the treated amine mixture.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Art Unit: 1714

9. Claims 6, 11-12, 16-17, and 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Papay (U.S. Pat. No. 5,652,201).

The discussion of Soula in paragraph 6 above is incorporated here by reference.

The differences between Soula and the currently presented claims are:

i) Soula discloses a lubricant additive comprising a treated amine, but does not disclose a Mannich adduct. This relates to Claim 6.

ii) Soula does not disclose an additional additive. This relates to Claims 11-12, 16, and 21.

iii) Soula discloses a succinimide dispersant, but does not disclose a post treated succinimide. This relates to Claims 17 and 22.

With respect to i), Papay, in columns 20-23, teaches that a dispersant additive for a lubricating composition may be formed by the reaction of an alkylphenol and aldehyde, as recited in Claim 1, further reacted with a polyamine such as the treated amine of Soula.

With respect to ii), Soula discloses in column 7 lines 17-18 that additional additives may be combined with the succinimide. Papay, in column 44 lines 57-59 discloses that multiple ("one or more") dispersant may be included in a lubricant composition in order to improve dispersancy, and the additional dispersants may be succinimide or Mannich dispersants as recited in Claims 11, 16, and 21. Papay also teaches in column 45 lines 67-69 that the additional dispersant may be a dispersant-viscosity index improver, which are well known in the art to comprise a polymer reacted with an amine, as recited in Claims 11, 16, and 21. In column 50 line 51, Papay

Art Unit: 1714

discloses a preferred concentration of 0-5% for the supplemental dispersant; when combined with the 1 to 7% concentration taught for Soula's additive, this results in a concentration of 1 to 12% by weight of the additive package, strongly overlapping the range recited in Claim 12.

With respect to iii), Papay describes in columns 15-17 succinimide dispersant additives for lubricating composition, such as the type disclosed by Soula, and in columns 23-24 teaches that these additives may be post treated, as recited in Claims 17 and 22

It would have been obvious to one of ordinary skill in the art to react the treated amine of Soula with a Mannich adduct derived from an alkylphenol and aldehyde, as taught by Papay, as Papay teaches that the product is useful as a dispersant additive in a lubricant. It would have been obvious to post treat the dispersant of Soula in order to impart additional properties such as detergency.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Chung (U.S. Pat. 4,735,736).

The discussion of Soula in paragraph 6 above is incorporated here by reference. Soula discloses a treated amine but not a reaction product with an ethylene-propylene copolymer.

Chung, in the abstract, discloses a multifunctional viscosity index improver-dispersant additive comprising a product derived from an ethylene-propylene copolymer and a polyamine, which may be the treated amine disclosed by Soula. The product

Art Unit: 1714

taught by Chung also comprises a maleic anhydride, essentially leading to the succinimide disclosed by Soula grafted onto an ethylene-propylene copolymer.

It would have been obvious to one of ordinary skill in the art to include the treated amine of Soula in a reaction product including an ethylene-propylene copolymer, as taught by Chung, as the resulting product has both viscosity index improving and dispersant properties, as taught by Chung in column 1 lines 28-33.

11. Claims 13, 19-20, 23, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Steckel (U.S. Pat. No. 6,299,655).

The discussion of Soula in paragraph 6 above is incorporated here by reference. Soula teaches the reaction product of a succinic anhydride and a treated amine as a dispersant, but not its use as a fuel additive.

Steckel, in column 2 lines 39-44, teaches amines reacted with hydrocarbyl-substituted succinic anhydrides as a dispersant additive for fuels, meeting Claims 19 and 20. In column 16 lines 36-37 Steckel teaches that these additives may be used in diesel fuels, and in column 16 lines 66-67 teaches that the dispersant additive is present in an amount of 5 to 500 pounds per thousand barrels of diesel fuel, or more preferably 10 to 100 pounds per thousand barrels, with the latter range falling squarely within the ranges recited in Claims 13 and 23. Soula teaches in column 7 lines 13-16 that the additive may be used in an engine, and Steckel teaches in column 1-2, that nitrogen-containing dispersant, such as those taught by Soula, are effective in reducing deposits in engines, as recited in Claim 35.

Art Unit: 1714

It would have been obvious to one of ordinary skill in the art to use the additive of Soula in a fuel composition in the concentrations taught by Steckel for the purpose of preventing deposit buildup, as taught by Steckel in column 1 lines 63-67.

12. Claims 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert (U.S. Pat. No. 5,888,947).

This discussion of Soula in paragraph 6 above is incorporated here by reference. Soula discloses in column 7 lines 11-16 a lubricating oil composition including an additive for use in an engine, but does not teach a method for lubricating moving parts with the lubricant.

Lambert, in column 1 lines 21-33, teaches that moving parts can be lubricated by contacting them with a lubricant. The use of the lubricant disclosed by Soula in this method meets Claims 30 and 32. In Lambert's Claim 21 the use of a gear lubricant is disclosed, as recited in the currently presented Claim 31.

It would have been obvious to one of ordinary skill in the art to use the lubricant of Soula for the purpose of lubricating moving parts, as taught by Lambert, in order to reduce wear and increase the lifetimes of the moving parts.

13. Claims 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert as applied to claim 33 above, and further in view of Papay.

Art Unit: 1714

The discussions of Soula in view of Lambert in paragraph 13 above and Soula in view of Papay in paragraph 10 above are incorporated here by reference. Soula in view of Lambert does not disclose a second dispersant additive or a post treated additive.

Papay discloses a second dispersant and a post treated additive for a lubricant composition, as discussed in paragraph 10 above. The method for lubricating moving parts of Soula in view of Lambert further comprising a second dispersant or a post treated additive, as taught by Papay, meets Claims 33-34.

It would have been obvious to one of ordinary skill in the art to include in the method of Soula in view of Lambert a second dispersant additive, as taught by Papay, in order to further reduce deposits, or a post treated additive for the purpose of providing additional functionality to the dispersant of Soula.

14. Claims 10 and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert as applied to claim 30 above, and further in view of Galka (U.S. Pat. No. 6,427,647).

The discussion of Soula in view of Lambert in paragraph 12 above is incorporated here by reference. Soula in view of Lambert discloses a method of lubricating moving parts with a lubricant, but does not specifically disclose moving parts of a vehicle. Soula in view of Lambert does disclose that the moving parts may be within an internal combustion engine (Lambert's Claim 11)

Galka discloses a two-stroke internal combustion engine, and in column 1 teaches that the engines may be used in vehicles such as snowmobiles and marine

Art Unit: 1714

vessels, as recited in Claims 10 and 24. The use of the lubricating method of Soula in view of Lambert in the engine taught by Soula therefore meets the limitations of 10, 24, 25, and 27. Furthermore, an engine is part of a vehicle's drive train, meeting Claim 26 as well.

It would have been obvious to utilize the method of lubricating moving parts in an engine of Soula in view of Lambert in a vehicle, as taught by Galka, to improve the performance and durability of the vehicle.

15. Claims 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Lambert further in view of Galka as applied to claim 24 above, and further in view of Papay.

The discussions of Soula in view of Lambert in view of Galka in paragraph 15 above and Soula in view of Papay in paragraph 10 above are incorporated here by reference. The combination of Soula, Lambert, and Galka does not disclose a second dispersant additive or a post treated additive.

Papay discloses a second dispersant and a post treated additive for a lubricant composition, as discussed in paragraph 10 above. The method for lubricating the moving parts of a vehicle of Soula, Lambert, and Galks further comprising a second dispersant or a post treated additive, as taught by Papay, meets Claims 28-29.

It would have been obvious to one of ordinary skill in the art to include in the method of Soula in view of Lambert further in view of Galka a second dispersant

Art Unit: 1714

additive, as taught by Papay, in order to further reduce deposits, or a post treated additive for the purpose of providing additional functionality to the dispersant of Soula.

16. Claims 36-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Soula in view of Steckel as applied to claim 35 above, and further in view of Papay.

The discussions of Soula in view of Steckel in paragraph 12 above and Soula in view of Papay in paragraph 10 above are incorporated here by reference. Soula in view of Steckel does not disclose a second dispersant additive or a post treated additive.

Papay discloses a second dispersant and a post treated additive, as discussed in paragraph 10 above. The method for decreasing deposits of Soula in view of Steckel further comprising a second dispersant or a post treated additive, as taught by Papay, meets Claims 36-38.

It would have been obvious to one of ordinary skill in the art to include in the method of Soula in view of Steckel a second dispersant additive, as taught by Papay, in order to further reduce deposits, or a post treated additive for the purpose of providing additional functionality to the dispersant of Soula.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Goloboy whose telephone number is 571-272-2476. The examiner can normally be reached on M-F 8-4:30.

Art Unit: 1714

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

James C. Coloboy
JCG

Vasu Jagannathan
VASU JAGANNATHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700